

Chapter 7

Dietary Fibers and Nutraceuticals in Prevention of Hypertension

John Intru Disouza

Tatyasaheb Kore College of Pharmacy, India

Kiran Shivaji Patil

Tatyasaheb Kore College of Pharmacy, India

Pratik Shailendra Kakade

Institute of Chemical Technology, India

Vandana Bharat Patravale

Institute of Chemical Technology, India

ABSTRACT

Hypertension is the major cause of mortality amongst many cardiovascular risk factors causing 7.5 million deaths annually. Macronutrient and micronutrient deficiencies are very common in general population and have broad-ranging physiological effects in-vivo which lessen inflammatory cascades and vascular reactivity. A recent trend is to perform nutritional epidemiological studies linking overall diet pattern to the lifestyle, examining the link between food and nutrients of diet to risk of chronic diseases. This chapter would deal with pharmacological and pathological basis of hypertension, utilization of dietary fibers, functional foods, nutraceuticals for hypertensive populations as well as to those with increased cardiovascular risks.

DOI: 10.4018/978-1-5225-3267-5.ch007

INTRODUCTION

Cardiovascular diseases (CVD) are the leading cause of death globally accounting for more than 20 million deaths annually. 3.9 million Deaths in Europe and over 1.8 million deaths in the European Union (EU) occur due to (CVD) every year (*European Cardiovascular Disease Statistics*, 2017; EHN - European Heart Network, n.d.). Cardiovascular diseases are a group of disorders of the heart and blood vessels. People who are at high cardiovascular risk due to the presence of risk factors such as hypertension, diabetes, hyperlipidemia or already established disease, need early detection and management using counseling and medicines, as appropriate.

HYPERTENSION

Hypertension is a major risk factor for morbidity and mortality associated with stroke, heart failure and coronary artery disease and chronic kidney disease (CKD) (Mancia, Fagard, Narkiewicz, Redón, Zanchetti, & Böhm, 2013). Hypertension in adults of age 18 years and older is defined as systolic blood pressure (SBP) of 140 mmHg or greater and/or diastolic blood pressure (DBP) of 90 mmHg or greater or any level of blood pressure in patients taking antihypertensive medication (Chobanian, Bakris, Black, Cushman, Green, & Izzo, 2003).

CVD nevertheless remains the main cause of death, especially ischemic heart disease and cerebrovascular disease (CD)(Kearney et al., 2005; Zimmet, Alberti, & Shaw, 2001; Jackson, Lawes, Bennett, Milne, & Rodgers, 2005). Hypertension, was identified in a recent World Health Organization report as among the most important preventable causes of premature death. Atherosclerosis is the basic reason for high blood pressure, in which plaque builds inside the arteries. Several factors which lead to atherosclerosis are faulty food habits, lack of exercise, stress, sedentary lifestyle, etc. (McGill, 1979; He, Merchant, Rimm Rosner, Stampfer, Willett, & Ascherio,

Table 1. Types of hypertension

Category Pressure	Systolic Pressure mm Hg	Diastolic Pressure mm Hg
• Normal	90–119	60–79
• Pre-hypertension	120–139	80–89
• Stage 1	140–159	90–99
• Stage 2	≥160	≥100
• Isolated systolic Hypertension	≥140	<90

39 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/dietary-fibers-and-nutraceuticals-in-prevention-of-hypertension/207975

Related Content

Emotional Intelligence and Online Healthcare: The Case Study of Canada

Khadijeh Roya Rouzbehani (2019). *International Journal of Applied Research on Public Health Management* (pp. 1-14).

www.irma-international.org/article/emotional-intelligence-and-online-healthcare/232253

Exploring the Public Health and Safety Importance of a Corporate Chief Public Health Officer in Food Service and Food Production Organizations

Kiana S. Zanganehand Darrell Norman Burrell (2022). *International Journal of Applied Research on Public Health Management* (pp. 1-16).

www.irma-international.org/article/exploring-the-public-health-and-safety-importance-of-a-corporate-chief-public-health-officer-in-food-service-and-food-production-organizations/306220

The Role of Social Media in Preventing the COVID-19 Pandemic

Ayşe Konacand Yüksel Barut (2021). *Handbook of Research on Representing Health and Medicine in Modern Media* (pp. 436-445).

www.irma-international.org/chapter/the-role-of-social-media-in-preventing-the-covid-19-pandemic/274006

The Impact and Implication of Artificial Intelligence on Thematic Healthcare and Quality of Life

Bongs Lainjoand Hanan Tmouche (2023). *International Journal of Applied Research on Public Health Management* (pp. 1-17).

www.irma-international.org/article/impact-implication-artificial-intelligence-thematic/318140

Antibiotic Resistance in the Veterinary Perspective: A Major Challenge in Achieving One Health

Sophia Inbaraj, Vamshi Krishna Sriram, Prasad Thomas, Abhishek Vermaand Pallab Chaudhuri (2019). *Global Applications of One Health Practice and Care* (pp. 142-157).

www.irma-international.org/chapter/antibiotic-resistance-in-the-veterinary-perspective/222652